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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,562	02/25/2002	Tomoichi Kamo	62807-04	8250

7590 06/21/2005

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EXAMINER

YUAN, DAH WEI D

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/080,562

Applicant(s)

KAMO ET AL.

Examiner

Dah-Wei D. Yuan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 May 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 02022005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

K8

**FUEL CELL POWER GENERATION EQUIPMENT
AND A DEVICE USING THE SAME**

Examiner: Yuan

S.N. 10/080,562

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February 16, 2005

Detailed Action

1. The Applicant's amendment filed on May 18, 2005 was received. The title of the invention was changed and specification was amended. Claims 14,20-22 were amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action issued on February 18, 2005.

Claim Rejections - 35 USC § 103

3. Claims 14-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yonetsu et al. (US 6,506,513 B1) in view of Hockaday et al. (US 2002/0182459 A1).

With respect to claims 14-18, Yonetsu et al. teach a fuel cell power generation system having a fuel cell stack body (2), a liquid fuel tank (1) and a pathway for introducing a liquid fuel from the liquid fuel tank into the stack body. The fuel cell stack body comprises a plurality of fuel cells that are electrically connected to each other. Each fuel cell has an anode, a cathode and an electrolyte membrane interposed between the electrodes. The liquid fuel tank further comprises a plurality of fine holes (6) (unsealed vent holes). The air vent hole can also be used as a fuel-feeding hole. Yonetsu et al. further teach the use of a gas introducing fine tube (11) for introducing the carbon dioxide generated in the anode of the fuel cell stack body (2) into the liquid fuel tank. Therefore, the fine holes can discharge the anode exhaust gas outside the fuel

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tank. See Figures 1 and 3; Column 4, Lines 33-49; Column 5, Lines 46-67; Column 6, Lines 1-47; Example 4.

However, Yonetsu et al. do not teach at least one of the vent holes has a gas/liquid separation function. Hockaday et al. teach a fuel cell system comprising a fuel container (7) comprising methanol. The fuel container has an exit port (13) (vent hole) that comprises a porous membrane, such as porous polyethylene or expanded polytetrafluoroethylene (PTFE), in order to let the filtered gaseous component out of the container. See Paragraphs 66,67,68, Figures 1-3. Therefore, it would have been obvious to one of ordinary skill in the art to include a porous membrane in at least one of the air vent holes of Yonetsu et al., because Hockaday et al. teach the use of such membrane to separate gas from the liquid in the fuel container of a fuel cell system.

With respect to claim 19, each fuel cell comprises a vaporizing plate (g) (a diffusion layer). See Column 4, Lines 45-49; Figure 2.

With respect to claims 20,21, a liquid fuel permeating material (8) is used to provide liquid fuel to the anode of the fuel cell stack body. See Column 6, Lines 17-39.

With respect to claims 22,23, the liquid fuel tank is made of material selected from the group consisting polyethylene, polypropylene, polycarbonate or a fluorine-containing resin such as polytetrafluoroethylene. They are all electrically insulating materials. See Column 12, Lines 22-30.

With respect to claim 24, the liquid fuel is selected from the group consisting of methanol, ethanol and propanol. See Column 5, Lines 4-7.

Response to Arguments

4. Applicant's arguments filed on May 18, 2005 have been fully considered but they are not persuasive.

Applicant's principle arguments are

Neither reference teaches at least one air vent hole that is kept unsealed form the liquid fuel in the fuel container.

In response to Applicant's arguments, please consider the following comments.

Yonetsu et al. teach the presence of fine hole as a mechanism against the negative pressure on the side wall of the fuel tank. It is also disclosed the use of a plurality of fine holes. See Column 5, Lines 46-67. In particular, the use of two fine holes is exemplified in Example 2, wherein the two holes are formed diagonally apart from each other in the liquid fuel tank.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dah-Wei D. Yuan whose telephone number is (571) 272-1295. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dah-Wei D. Yuan
June 16, 2005



DAH-WEIYUAN
PRIMARY EXAMINER